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A P P L I C A T I O N

Of

ROBERT D. HARRIS

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On

PORTABLE ABDOMINAL EXERCISE DEVICE

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PORTABLE ABDOMINAL EXERCISE DEVICE

BACKGROUND OF THE INVENTION

5           The present invention generally relates to abdominal exercise devices. More particularly, the present invention relates to a portable abdominal exercise device for use in association with a chair, and which can be stored and transported easily.

10           Abdominal exercises, such as crunches or sit-ups, are performed to strengthen the abdominal and lower back muscles. It is well-known that performing abdominal exercises can strengthen the back to avoid back injuries, and trim the waist of the exerciser. These abdominal exercises are performed by bringing the torso towards the bent knees of the exerciser. Such exercises can be performed while sitting in a chair, or lying on the  
15           ground. When lying on the ground, gravity provides resistance to raising the torso towards the knees resulting in increased strength to the abdominal muscles. The resistance of gravity while performing such exercises when seated in a chair only has an effect when raising the torso away from the knees, thus lessening the desired effect on the abdominal muscles.

20           There exist many abdominal muscle exercising machines. Some of these are large and cumbersome and restricted to the gym or home setting. Others are more portable, but still rather complicated in use or generally ineffective. Moreover, even many of these "portable" exercise devices are not very compact for storage and transportation, such as when  
25           traveling.

          Accordingly, there is a continuing need for an abdominal exercise device which is portable and which can be disassembled for ease of transportation such as when traveling. Such an abdominal exercise device should assist a user thereof in obtaining resistance, and thus target the  
30           abdominal muscles, when in the seated position. The present invention fulfills these needs and provides other related advantages.

## SUMMARY OF THE INVENTION

5 The present invention resides in a portable exercise device for use in association with a backrest of a chair. The abdominal exercise device of the present invention is small, can be disassembled for transportation, and is relatively inexpensive.

10 The abdominal exercise device of the present invention includes one or more elastomeric resistance bands which are adapted to encircle the backrest of the chair. The one or more elastomeric resistance bands are preferably connected to a back support plate. Typically, the back support plate includes means on opposing edges thereof for removably receiving ends of the resistance bands. In a particularly preferred embodiment, such means comprise slots extending from edges of the back support plate to apertures formed in the back support plate. A portion of the resistance band  
15 can be inserted into the slot, and ends of the resistance bands are enlarged with respect to the apertures so as not to pass therethrough. Although as few as a single resistance band may be used, preferably multiple resistance bands are utilized so that the amount of the resistance can be varied.

20 An elongated strap adapted to fit a torso of a user is typically connected to the back support plate, although the resistance bands may be directly connected to the elongated strap. The back support plate includes a pair of spaced apart apertures which removably accept the strap therethrough in looped fashion. The strap has free ends including means which are adapted to be releasably coupled to one another. Preferably, the  
25 strap is adjustable in length and includes padded sections for user comfort.

30 In use, the one or more elastic bands are stretched over the backrest of the chair and coupled to the back support plate. The elongated strap is connected to the back support plate, and coupled to the torso of the user. As the user moves his or her torso away from the backrest and towards his or her knees, the elastomeric bands resist this movement causing the muscles to experience resistance.

Other features and advantages of the present invention will become apparent from the following more detailed description, taken in conjunction with the accompanying drawings, which illustrate, by way of example, the principles of the invention.

### BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings illustrate the invention. In such drawings:

FIGURE 1 is a partially fragmented perspective view of an abdominal exercise device embodying the present invention coupled to a backrest of a chair and a user, shown in phantom, sitting in an upright position;

FIGURE 2 are fragmented perspective views illustrating the user performing seated crunch abdominal exercises using the abdominal exercise device of the present invention;

FIGURE 3 is an exploded perspective view of the various components of the abdominal exercise device of the present invention;

FIGURE 4 is a front perspective view of the abdominal exercise device of the present invention;

FIGURE 5 is a rear perspective view of the abdominal exercise device; and

FIGURE 6 is a fragmented perspective view of the abdominal exercise device of the present invention coupled to a backrest of a chair.

### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

As shown in the accompanying drawings for purposes of illustration, the present invention resides in a portable abdominal exercise device, generally referred to by the reference number 10, which is particularly adapted for use in association with a backrest 12 of a chair 14 to provide

resistance to a user 16 seated in the chair 14 while performing abdominal exercises.

With reference to FIGS. 1 and 2, an exercise device 10 embodying the present invention is coupled to the backrest 12 of a chair 14 and to a user 16 seated in the chair 14. As the user 16 bends forward so that a torso of a user is brought towards the knees of the seated user, the device 10 of the present invention provides resistance to this movement and causes additional strengthening of the abdominal and lower back muscles so as to enhance the effect of the exercise.

With reference now to FIGS. 3-5, the device 10 is comprised of three general components. At least one, and preferably multiple, resistance bands 18 comprised of an elastomeric material which is capable of being stretched and returned to its rested state are provided. The resistance bands 18 are of such a length so as to extend around the backrest 12 of a chair 14, as illustrated in FIGS. 1, 2 and 6. The resistance bands 18 can be comprised of bungee-type material, surgical tubing, or any other similar material. The resistance bands 18 may be provided in different lengths so as to accommodate backrests 12 of different dimension, or to enable the user 16 to have greater motion during the abdominal exercise. However, it has been found that a majority of backrests 12 are of a certain range in width, and the range of movement for the typical seated crunch is preferably limited, so the resistance bands 18 are typically offered in a single length. It will be appreciated by those skilled in the art, that the provision of multiple resistance bands 18 allows the user 16 to alter the resistance by using more or less resistance bands 18 as need dictates.

The resistance bands 18 are preferably connected to a back support plate 20. Although the resistance bands 18 may be permanently attached to the back support plate 20, in a particularly preferred embodiment, the resistance bands 18 are removably connected to the back support plate 20 so that the resistance of the device 10 can be altered, and the device 10 can be easily disassembled for compact storage and transportation, such as

when traveling. Accordingly, the back support plate 20 includes means for removably attaching to the free ends 22 of the resistance bands 18. In a particularly preferred embodiment, as illustrated, opposing edges of the back support plate 20 include a plurality of slots 24 which extend to apertures 26. The free ends 22 of the resistance bands 18 are enlarged. In a particularly preferred embodiment, surgical-type tubing comprises the resistance bands 18. Steel or plastic balls are inserted into the open free end to enlarge the end 22. The elastomeric tubing is slid through the slot 24 until the enlarged end 22 contacts the aperture 26. As the enlarged end 22 is larger than the aperture 26, it cannot pass therethrough and thus the free ends 22 of the resistance bands 18 are releasably held to the back support plate 20. Such arrangement is shown in FIGS. 4 and 5.

As shown in the various figures, an elongated strap 28 is connected to the back support plate, generally opposite the resistance bands 18. To facilitate transport and storage of the device 10, the strap 28 is preferably removably attached to the back support plate 20. In this regard, the back support plate 20 includes spaced apart slots 30 which are configured to receive the strap 28 therethrough, as shown in FIG. 4. The strap 28 may be comprised of leather, canvas, cloth or other suitable material. Free ends of the strap 28 include means, such as the illustrated mating clip ends 32 and 34, for being removably attached or otherwise coupled to one another so as to permit the strap 28 to be secured about a torso of the user 16, such as illustrated in FIG. 1. The strap 28 is also preferably adjustable in length so as to accommodate user 16 of different sizes. Preferably, the coupling means 32 and 34 also includes means for adjusting the length of the strap, such as looping the ends 36 of the strap through an elongated slot member of the clip portions 32 and 34. The strap 28 also preferably includes padded sections 38 which are typically positioned about the shoulders or arms of the user 16, as illustrated in FIGS. 1 and 2, to provide comfort to the user.

In use, as shown in FIGS. 1, 2 and 6, the desired number of resistance bands 18 are attached to the back support plate 20, as described above. The strap 28 is looped through the slots 30 of the back support plate

20. The device 10 is positioned over a backrest 12 of a chair 14 by extending the one or more resistance bands 18 behind the backrest 12, with the back support plate 20 positioned in front of the backrest 12. The user 16 then sits in the chair and secures the strap 28 securely about his or her torso area while seated in an upright position, as illustrated in FIG. 1. The user 16 then performs abdominal seated crunches by moving his or her torso away from the backrest 12 and towards his or her knees. The resistance bands 18 resist this forward motion and serve to exercise the abdominal muscles and lower back muscles as the user 16 performs these exercises.

It will be appreciated by those skilled in the art that the device 10 of the present invention is simple in operation and relatively inexpensive. Furthermore, the device 10 is small so as to be portable. Due to its design, the device 10 can be disassembled so that it can be easily transported and stored. The device 10 of the present invention also provides varying resistance by changing the number or type of resistance bands 18.

Although several embodiments have been described in detail for purposes of illustration, various modifications may be made without departing from the scope and spirit of the invention. Accordingly, the invention is not to be limited, except as by the appended claims.